CLAIMS

What is claimed is:

1. A system for editing a data cube with respect to a normal criterion, the criterion initially satisfied by some but not all dimension level combinations in said data cube, the system comprising:

a dimension structure of the data cube, the dimension structure including dimension levels of the data cube; and

means for editing the dimension structure of said data cube so that said normal criterion is satisfied by at least one additional dimension level combination.

2. The system of claim 1 wherein the means for editing forms a modified data cube in which said criterion is satisfied by all the dimension level combinations of the modified data cube.

3. The system of claim 1 further comprising:

a projection of said data cube; and

wherein the means for editing edits a dimension structure of the projection of said data cube and forms a modified projection in which said criterion is satisfied by all dimension level combinations from said modified projection.

4. The system of claim 3 wherein the means for editing includes editing dimension structures so that one or more normal criterion associated with one or more projections of said data cube are satisfied by all dimension level combinations from said projections,

thereby allowing complex criteria, including inference control criteria required to enforce identify protection requirements for subjects of research studies, to be satisfied by the data cube.

5. The system of claim 1 wherein the data cube is realized as a star schema in an SQL relational database.

6. The system of claim 1 further including means for associating with the dimension structure of said data cube, an intensity function revealing intensity of patterns or structures in said data cube;

wherein the means for editing utilizes said function in editing of said dimension structure, including enabling the editing process to avoid invalidating useful patterns and structures expressed by said data cube.

7. The system of claim 6 wherein said intensity function and said editing are used to rewrite the dimension structure of said data cube in order to express more clearly, to a user of the system, correlations existing in said data cube, such that discovery of hidden relationships expressed by the data cube is enabled.

8. A method for editing a data cube with respect to a normal criterion, the criterion initially satisfied by some but not all dimension level combinations in said data cube, comprising the steps of:

providing a dimension structure of the data cube, the dimension structure having dimension levels of data of the data cube; and

editing the dimension structure of said data cube so that said normal criterion is satisfied by at least one additional dimension level combination.

9. The method of claim 8 wherein the step of editing further includes forming a modified data cube in which said criterion is satisfied by all the dimension level combinations of the modified data cube.

10. The method of claim 8 further comprising the step of providing a projection of said data cube, wherein the step of editing further includes (a) editing a dimension structure of the projection of said data cube, and (b) forming a modified projection in which said criterion is satisfied by all dimension level combinations from said modified projection.

11. The method of claim 10 wherein the step of editing includes editing dimension structures so that one or more normal criterion associated with one or more projections of said data cube are satisfied by all dimension level combinations from said projections, thereby allowing complex criteria, including inference control criteria required to enforce privacy requirements for subjects of research studies, to be satisfied by the data cube.

12. The method of claim 8 wherein the data cube is realized as a star schema in an SQL relational database.

13. The method of claim 8 further including:

associating with the dimension structure of said data cube, a function revealing intensity of patterns or structures in said data cube; and

using said function to direct said editing of said dimension structure, such that the step of editing avoids invalidating useful patterns and structures expressed by said data cube.

14. The method of claim 13 further comprising the step of using said function with said editing to rewrite the dimension structure of said data cube in order to

express more clearly, to a user, correlations existing in said data cube in a manner enabling users to discover hidden relationships expressed by the data.